

REMARKS/ARGUMENTS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 1-4 are currently pending in this application and Claims 1 and 3 are amended.

In the outstanding Office Action, Applicant was advised that if Claims 1 and 2 are allowed Claims 3 and 4 would be objected to under 37 C.F.R. §1.75 as being substantially duplicate of Claims 1 and 2. Claims 1-4 were rejected under 35 U.S.C. §102(b) as anticipated by Grunewald (U.S. Patent No. 5,986,264).

With respect to the advisory 37 C.F.R. §1.75 objection, Applicant has amended Claim 1 to clarify the difference in scope between Claims 1 and 3. Amended Claim 1 recites "...an analyzing unit configured to define an arbitrary two-dimensional section in said three-dimensional data...." Claim 4 recites "...an analyzing unit configured to extract an arbitrary three-dimensional region from said three-dimensional data...." Applicants respectfully submit that amended Claims 1 and 3 are not substantially duplicate of each other.

Amended Claim 1 is directed toward a crystal analyzing apparatus. There is an ion beam emitting unit configured to emit an ion beam onto a sample to sequentially form a plurality of sections of the sample. There is an electron beam emitting unit configured to emit an electron beam to each of the plurality of sections. There is a detection unit configured to detect, with respect to the plurality of sections, an electron backscatter diffraction pattern produced from the sample as a result of the emission of the electron beam. There is a data processing unit configured to construct three-dimensional data about a crystal orientation distribution of the sample on the basis of results detected by the detecting unit. There is an analyzing unit configured to define, for example, an arbitrary two-dimensional

section in the three-dimensional data and performing a crystal analysis about the arbitrary section. This configuration allows for three-dimensional crystal analysis.¹

Grunewald does not disclose a crystal analyzing apparatus. On the contrary, Grunewald discloses an ion beam preparation device that is capable of observing the preparation process with the aid of a scanning electron microscope.² The ion source bombards a specimen for etching while the electron sources images the specimen surface during the etching.³ The scanning electron microscope makes continuous evaluation of the momentary etching state as well as an optical determination of the etching process.⁴

Applicant respectfully submits that Grunewald does not disclose all the elements of Claim 1. Claim 1 recites "...a data processing unit configured to construct three-dimensional data about a crystal orientation distribution of said sample...." Indeed, Grunewald does not disclose this element.

On the contrary, Grunewald uses an electron beam to monitor an etching process. The data generated by the electron beam in Grunewald is related to the on going status of specimen preparation and accuracy of the specimen etching.⁵ The data generated by the electron beam disclosed in Grunewald is not used in "constructing three-dimensional data about a crystal orientation."

Furthermore, the Office Action provides no rationale indicating how Grunewald can be said to teach "a data processing unit."

Claim 1 also recites "...a detecting unit configured to detect...an electron backscatter diffraction pattern...." Grunewald does not disclose detecting an electron backscatter diffraction pattern. The ion etching device of Grunewald has no need to detect an electron

¹ Specification, page 1, lines 20-21.

² Grunewald, Abstract, lines 1-4.

³ Grunewald, col. 8, lines 13-29.

⁴ Grunewald, col. 3, lines 35-40.

⁵ Grunewald, col. 6, lines 28-31.

backscatter diffraction pattern because it is not “constructing three dimensional data about a crystal orientation on the basis of results detected by said detecting portion” as Claim 1 recites.

On the contrary, detectors 7, 8 and 9 of Grunewald detect secondary electrons, backscatter electrons and transmitted electrons.⁶ They are not detecting an electron backscatter diffraction pattern. Detecting a diffraction pattern is useful in crystal analysis, but not in ion beam preparation.

Claim 1 also recites “an analyzing portion for defining an arbitrary two-dimensional section in said three-dimensional data and performing a crystal analysis about said arbitrary two-dimensional section.” Grunewald does not teach this element.

The Office Action states that control unit 19 equates to the analyzing portion.⁷ However, Grunewald does not teach that control unit 19 defines an arbitrary two-dimensional section in the three dimensional data and does not teach how to perform any crystal analysis. Instead, control unit 19 is used to automatically terminate a thinning process.⁸

In view of the above noted distinctions, Applicant respectfully submits that Claim 1 (and its dependent Claim 2) patentably distinguish over Grunewald. Claim 3 is similar to Claim 1. Applicants submit that Claim 3 (and its dependent Claim 4) patentably distinguish over Grunewald for at least the reasons given for Claim 1 and also because it requires extracting an arbitrary three dimensional region from the three dimensional data to perform the crystal analysis.

⁶ Grunewald, Abstract, line 7.

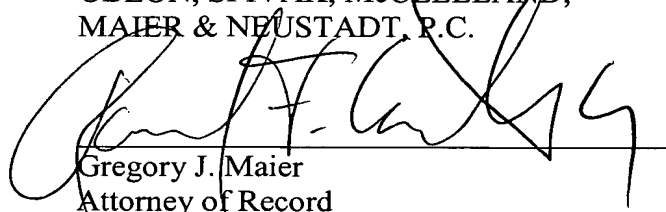
⁷ Office Action, page 2.

⁸ Grunewald, col. 8, lines 10-11.

Consequently, in view of the above amendments and comments, it is respectfully submitted that the outstanding rejection is traversed and that the pending claims are in condition for allowance. An early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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A large, stylized handwritten signature in black ink, likely belonging to Gregory J. Maier, is written over a horizontal line.

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